A T T A C H M E N T B

BIAS TEST

ATTACHMENT B

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The bias of the data shall be determined based on the relative accuracy (RA) test data sets and the relative accuracy (RATA) test audit data sets for NO_X pollutant concentration monitors, fuel gas sulfur content monitors, flow monitors, and emission rate measurement systems using the procedures outlined below.

1. Calculate the mean of the difference using Equation 2-1 of 40 CFR, Part 60, Appendix B, Performance Specification 2. To calculate bias for a NO_X pollutant concentration monitor, "d" shall, for each paired data point, be the difference between the NO_X concentration values (in ppmv) obtained from the reference method and the monitor. To calculate bias for a flow monitor, "d" shall, for each paired data point, be the difference between the flow rate values (in dscfh) obtained from the reference method and the monitor. To calculate bias for an emission rate measurement system, "d" shall, for each paired data point, be the difference between the emission rate values (in lb/hr) obtained from the reference method and the monitoring system.

2. Calculate the standard deviation, S_d, of the data set using Equation 2-2 of 40 CFR, Part 60, Appendix B, Performance Specification 2.

3. Calculate the confidence coefficient, cc, of the data set using Equation 2-3 of 40 CFR, Part 60, Appendix B, Performance Specification 2.

4. The monitor passes the bias test if it meets either of the following criteria:

    a. the absolute value of the mean difference is less than |cc|.

    b. the absolute value of the mean difference is less than 1 ppmv.

5. Alternatively, if the monitoring device fails to meet the bias test requirement, the Facility Permit holder may choose to use the bias adjustment procedure as follows:

    a. If the CEMS is biased high reltive to the reference method, no correction will be applied.

b. If the CEMS is biased low relative to the reference method, the data shall be corrected for bias using the following procedure:

$$CEM_i^{adjusted} = CEM_i^{monitored} \times BAF \qquad \text{(Eq. B-1)}$$

where:

$CEM_i^{adjusted}$ = Data value adjusted for bias at time i.

$CEM_i^{monitored}$ = Data provided by the CEMS at time i.

BAF = Bias Adjustment Factor.

$$BAF = 1 + (\overline{|d|} / \overline{CEM}) \qquad \text{(Eq. B-2)}$$

where:

$\overline{d}$ = Arithmetic mean of the difference between the CEMS and the reference method measurements during the determination of the bias.

$\overline{CEM}$ = Mean of the data values provided by the CEMS during the determination of bias.

If the bias test failed in a multi-level RA or RATA, calculate the BAF for each operating level. Apply the largest BAF obtained to correct for the CEM data output using equation B-1. Apply this adjustment to all monitoring data and emission rates from the time and date of the failed bias test until the date and time of a RATA that does not show bias. These adjusted values shall be used in all forms of missing data computation, and in calculating the mass emission rate.

The BAF is unique for each CEMS. If backup CEMS is used, any BAF applied to primary CEMS shall be applied to the backup CEMS unless there are RATA data for the backup CEMS within the previous year.